REMARKS

The final Office Action dated October 14, 2004, has been reviewed carefully and the application has been amended in a sincere effort to place the claims in condition for allowance.

Claims 1, 3-8 and 15-32 are pending in the application. Claims 21-31 were withdrawn, as the Examiner deemed that the claims examined in the initial Office action, (i.e. claims 1, 3-8 and 15-20) were constructively elected in response to the Examiner's Restriction Requirement.

Claim Rejections - 35 U.S.C. § 102

Claims 1 and 19 were rejected under 35 U.S.C. § 102(e) in view of Surampudi *et al.*, United States Patent No. 6,265,093. Applicants' arguments were presented in the Amendment dated June 11, 2003. Based upon the Examiner's Response to those arguments in the Second Office Action, Applicants have made amendments herein that Applicants believe place the claims in condition for allowance. Briefly, Applicants' invention provides an auxiliary fuel delivery mechanism that operates in response to a change in the operating conditions of the fuel cell. For example, during periods when the demand for power is comparatively low, a dilute fuel mixture is supplied through a dilute fuel/water mixture, a "first fuel mixture" conduit. More specifically, the typical route is illustrated in Fig. 5 of the application. For example, a fuel source 4 delivers fuel to a pump 6, which adds water and then delivers the mixture along a first fuel

mixture conduit that includes portion 36, whereby an aqueous solution of methanol is delivered to the anode, schematically illustrated by the letter A in the fuel cell system 40 of Fig. 5.

During operation of the fuel cell system, an increased demand for more fuel can occur, due to various changes in operating conditions. The present invention provides a solution for those circumstances. In accordance with one embodiment of the invention, an alternative fuel delivery route delivers a more concentrated fuel directly to the anode via the fuel path 22, which is illustrated in Fig. 5. Thus, Applicants' system delivers a more highly concentrated fuel upon demand and bypasses the first fuel/water mixture conduit partially or entirely, and the system does not require recirculation of methanol.

The Examiner has noted in his comments in the Response to Arguments section that this recited novelty is not stated in the independent claims. Therefore, Applicants have amended claim 1 to recite that a conduit bypassing at least a portion of the first fuel mixture conduit, which is coupled to a source of fuel delivers a more concentrated fuel to the anode. A controller coupled to one or more valves and is responsive to a change in operating conditions of the fuel cell, operates to actuate one or more valves to allow this more concentrated fuel to bypass at least a portion of the first fuel mixture conduit and to be delivered to the anode in response to the changes in operating conditions This occurs without requiring that the more concentrated fuel pass through a methanol recirculation loop as required by Surampudi, *et al.*

It is respectfully submitted that the present Amendment enhances and clarifies the distinctions that independent claim 1 has over the cited reference. Claim 19 is dependent on claim 1, and is thus correspondingly also distinguishable over the prior art reference.

Claim 32 was also rejected under 35 U.S.C § 102 as being anticipated by Surampudi *et al.* In the passage cited by the Examiner in rejecting claim 32 based upon Surampudi *et al.*, the Examiner refers to the system of Fig. 9, which includes methanol tank 900 that stores pure methanol. However, this methanol is pumped to a circulation tank 906 to which water from water tank 908 is also added. Additionally, recycled methanol from source 946 from the output of the methanol stack is added to tank 906. All of these substances are combined in the circulation tank 906. From Fig. 9, it does not appear that the pure methanol can be delivered directly to the anode of the fuel cell, but instead is processed via the pump and recirculation tank 906. In contrast, Applicants' more concentrated fuel is delivered directly to the anode and bypasses the circulation and/or recirculation tanks and loops. Claim 32 has been amended in order to clarify this distinction, which the invention has over the prior art.

Claims 3 and 4 were rejected under 35 U.S.C. § 103 on the basis that it would have been obvious to one of ordinary skill in the art to have one or more apertures extending through the anode diffusion layer on the direct methanol fuel cell of Surampudi in view of Sugita, United States Patent No. 6,350,540.

Claim 3 has been cancelled, but claim 4 has been amended to include the elements of claim 3 and to further require that the apertures are connected by one or more conduits and one or more valves that deliver a more concentrated fuel in such a manner that at least a portion of a first fuel mixture conduit is bypassed. Once again, neither Surampudi nor Sugita suggest this bypass path for a more concentrated fuel.

Claims 6 and 7 were rejected on similar grounds, and Applicants respectfully submit that the amendments made herein to claim 6 clarify the distinctions which that claim has over the prior art references based upon the same arguments already presented. Claim 7 has been cancelled.

Claims 15 - 17 were rejected under 35 U.S.C. § 103 based on similar grounds as those described hereinbefore. Applicants have herein amended claim 1, upon which claims 15 - 17 depend. And, in view of those amendments, it is respectfully submitted that claims 15 - 17 are now in condition for allowance.

Allowable Subject Matter

The Examiner indicated that claims 5, 8, 18 and 20 were rejected as being dependent upon the rejected base claim, but would be allowable if rewritten in independent form. Each of those claims has been so rewritten herein, with some additional amendments, and it is respectfully submitted that they are now in condition for allowance.

SUMMARY

All of the claims have been amended either directly or indirectly through dependency. It is respectfully submitted that the application is now in condition for allowance. Please do not hesitate to contact the undersigned in order to advance the prosecution of this application in any respect.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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